



UNITED STATES PATENT AND TRADEMARK OFFICE

H.F.
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,070	05/31/2006	Moises DelaCruz	D51.12-0005	6796
27367	7590	12/07/2007	EXAMINER	
WESTMAN CHAMPLIN & KELLY, P.A.			PHAM, EMILY P	
SUITE 1400			ART UNIT	PAPER NUMBER
900 SECOND AVENUE SOUTH			2838	
MINNEAPOLIS, MN 55402-3319				

MAIL DATE	DELIVERY MODE
12/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/581,070	DELACRUZ, MOISES
	Examiner Emily P. Pham	Art Unit 2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 31 May 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-18 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 31 May 2006 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All * b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>10/10/2006 & 5/31/2006</u>	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements (IDS) submitted on 10/10/2006 and 5/31/2006 are compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. The drawings do not show the following features:

An inductor of AC reactance as recited in claim 2.

The rectifier bridge comprising schottky diodes as recited in claim 6.

An inductor coupled in series with the switch as recited in claim 16.

A lithium ion battery as recited in claim 17.

Therefore, the features must be shown or canceled from the claims. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure

is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. Applicant is reminded of the proper content of an abstract of the disclosure.
A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use

thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

4. The disclosure is objected to because of the following informalities: "couplable" and "galvanically" used in the specification do not provide meaning in English.

Appropriate correction is required.

5. The specification has not been checked to the extent necessary to determine the present of all possible minor errors. The cooperation of applicant is requested in correcting any error of which applicant may become aware of in the specification. The substitute specification filed must be accompanied by a statement that it contains no new matter.

Claim Objections

6. Claim 18 is objected to because of the following informalities: "couplable" does not provide meaning in English.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 3, 4, 12, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Massey et al. (U.S. Patent 4,558,229).

9. Regarding independent claim 1:

Massey et al. (**FIG 2**) disclose a AC to DC converter circuit, comprising: AC input contacts (**FIG 2, 101, 102**), and DC output contacts (**FIG 2, 31, 34**); a transformer having primary and secondary windings (**FIG 2, 110**); a rectifier bridge coupled to the secondary winding (**FIG 2, 115, 120**); a DC filter capacitor coupled to the rectifier bridge (**FIG 2, 121, 128, 129**); a voltage regulator coupled the DC filter capacitor and to the DC

output contacts (**FIG 2, 122, 125**); and an AC reactance coupled in a series circuit with the primary winding and the AC input contacts (**FIG 2, 108**).

10. Regarding dependent claim 3:

Massey et al. (**FIG 2**) disclose AC to DC converter circuit wherein the AC reactance comprises an AC capacitor (**FIG 2, 108**).

11. Regarding dependent claim 4:

Massey et al. (**FIG 2**) disclose AC to DC converter circuit wherein the secondary winding is a center tapped winding, and wherein the rectifier bridge comprises two diodes (**FIG 2, 110, 115**).

12. Regarding dependent claim 12:

Massey et al. (**FIG 2**) disclose AC to DC converter circuit wherein the AC reactance has an impedance that is larger than a primary winding impedance to reduce AC voltage at the primary winding (**FIG 2, 108**).

13. Regarding dependent claim 15:

Massey et al. (**FIG 2**) disclose AC to DC converter circuit wherein the voltage regulator comprises a switching regulator with a switch (**FIG 2, 171**).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Massey et al. (U.S. Patent 4,558,229) as applied to claim 1 above, and further in view of Chun et al. (U.S. Patent 4,038,559).

Massey et al. do not disclose AC to DC converter circuit wherein the AC reactance comprises an inductor.

Chun et al. (**FIG 3**) teach AC to DC converter circuit wherein the AC reactance comprises an inductor (**FIG 3, 23**).

Massey et al. and Chun et al. teach AC to DC converter/regulator. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine techniques taught by Massey et al. and Chun et al. for the purpose of regulating the AC input line due to the high reactance of the transformer as Chun et al. state at lines 59-65 of column 5.

16. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Massey et al. (U.S. Patent 4,558,229) as applied to claim 3 above, and further in view of Kuwata et al. (U.S. Patent 4,691,273).

Massey et al. do not disclose AC to DC converter circuit wherein the second winding is not a center tapped winding, wherein the rectifier bridge comprises four diodes, wherein the rectifier bridge comprise schottky diodes.

Kuwata et al. (**FIG 2**) teach converter circuit wherein the second winding is not a center tapped winding (**FIG 2, 34**), wherein the rectifier bridge comprises four diodes (**FIG 2, D5-D8**), wherein the rectifier bridge comprise schottky diodes (**FIG 2, D5-D8**).

Massey et al. and Kuwata et al. teach converter circuit. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine techniques taught by Massey et al. and Kuwata et al. for the purpose of increasing the efficiency of the converter because it is well known in the art that the construction of schottky diodes can help to eliminate the charge storage and storage time when the diode switches.

17. Claims 7, 8, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Massey et al. (U.S. Patent 4,558,229) as applied to claim 3 above, and further in view of Lorenzo et al. (U.S. Patent 4,307,332).

Massey et al. do not disclose AC to DC converter circuit wherein the voltage regulator is a series regulator or a shunt regulator, and wherein the shunt regulator is coupled to DC output contacts and shunts DC current to provide regulation.

Lorenzo et al. teach the voltage regulator is a series regulator or a shunt regulator (**column 3, lines 47-49**) and wherein the shunt regulator is coupled to DC

output contacts and shunts DC current to provide regulation (**FIG 1, 24; column 3, lines 47-49**).

Massey et al. and Lorenzo et al. teach converter circuit. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine techniques taught by Massey et al. and Lorenzo et al. for the purpose of increasing the flexibility in design the converter as Lorenzo et al. state in lines 47-52 of column 3.

18. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Massey et al. (U.S. Patent 4,558,229) further in view of Lorenzo et al. (U.S. Patent 4,307,332) as applied to claim 3 above, and further in view of Nishida et al. (U.S. Patent 6,160,720).

19. Regarding dependent claim 9:

Massey et al. and Lorenzo et al. in combination do not disclose AC to DC converter circuit wherein the shunt regulator is coupled to the primary winding.

Nishida et al. teach shunt regulator is coupled to the primary winding (**FIG 4, SR1**)

20. Regarding dependent claim 10:

Massey et al. and Lorenzo et al. in combination disclose the claimed invention except for the shunt regulator coupled to the secondary winding.

Nishida et al. teach shunt regulator is coupled to the secondary winding (**FIG 1, FIG 1, SR**)

Massey et al., Lorenzo et al., and Nishida et al. teach circuit for voltage regulation. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine techniques taught by Massey et al., Lorenzo et al., and Nishida et al. for the purpose of increasing the efficiency of voltage regulation as Nishida et al. state in lines 42-49 of column 3.

21. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Massey et al. (U.S. Patent 4,558,229) as applied to claim 12 above, and further in view of Takehara et al. (U.S. 2003/0210562).

22. Regarding dependent claim 13:

Massey et al. disclose the claimed invention except for the primary winding having a reduced number of primary turns commensurate with the reduced AC voltage.

Takehara et al. teach the primary winding having a reduced number of primary turns commensurate with the reduced AC voltage (**par [0042]**).

Massey et al. and Takehara et al. teach power supply apparatus using transformer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine techniques taught by Massey et al. and Takehara et al. for the purpose of increasing the efficiency of the transformer as Takehara et al. state in lines 1-5 of par [0042].

23. Regarding dependent claim 14:

Massey et al. and Takehara et al. in combination disclose the claimed invention except for the reduced number of primary turns having an increased wire diameter. It would have been obvious to one having ordinary skill in the art at the time the invention was made to reduce the number of turns of winding, and at the same time increase the diameter of the wire since it was known in the art that increase the diameter of the wire is required to progressively reduce magnetic fluxes generated by the windings.

24. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Massey et al. (U.S. Patent 4,558,229) as applied to claim 15 above, and further in view of Jurek et al. (U.S. Patent 6,054,816).

Massey et al. disclose the claimed invention except for an inductor coupled in series with the switch for controlling electromagnetic interference.

Jurek et al. (**FIG 3**) teach an inductor (**FIG 3, 46**) coupled in series with the switch (**FIG 3, 42**) for controlling electromagnetic interference (**Abstract**).

Massey et al. and Jurek et al. teach voltage regulation. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine techniques taught by Massey et al. and Jurek et al. for the purpose of obtaining a stable output voltage as Jurek et al. state in Abstract.

25. Regarding dependent claim 17:

Massey et al. teach the claimed invention except for the lithium ion battery charged by the AC to DC converter. It would have been an obvious matter of design choice to have lithium ion battery as the load of AC to DC converter since applicant has not disclose the claimed AC to DC converter solves any stated problem in charging lithium ion battery and it appears that the invention would perform equally well with any DC load.

26. Regarding independent claim 18:

Claim 18 is rejected because it has been held that to be entitled to weight in method claim(s), the recited structure limitations therein must affect the method in a manipulative sense, and not to amount to the mere claiming of a use of particular structure. *Ex parte Pfeiffer*, 1962 C.D. 408 (1961).

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Tillinger et al. (U.S. Patent 4,053,822), Steigerwald (U.S. Patent 4,628,426), Mohan (U.S. Patent 5,654,884), Matsumoto et al. (U.S. Patent 6,574,081), Kutkut (U.S. Patent 6,664,762), and Chang (U.S. Patent 6,765,811).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily P. Pham whose telephone number is (571) 270-3046. The examiner can normally be reached on Mon-Thu (7:00AM - 6:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm Ullah can be reached on (571) 272 - 2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nov 2007

Emily P. Pham
Patent Examiner
AU 2838



BAO Q. VU
PRIMARY EXAMINER